Appendix B

Water Quality Instrument Maintenance Logs

Table B-1. Multi-parameter water quality instrument operations logs.

Date	SN 30391/30960	SN 30542	SN 30543	SN 30544	SN 30545	SN 30546	SN 30547
11/04/03	Extracted tests 28-103003, 28-110303, and 28-110403. Battery at 73%.	Extracted tests 31-103003, 31-110303, and 31-110403. Battery at 51%.	Extracted tests 30A-102803, 30A-110303, and 30A-110403. Battery at 73%.				
11/10/03				Probes inserted to use for purge data collection. DO would not standardize after sitting for 3 hours, all other probes stabilized.		Probes inserted to use for purge data collection. ORP and pH were accepted as nominal. DO would not change from unstable after sitting for 20 minutes. The Troll was standardized again. All probes stabilized, but DO, pH, and ORP offsets were not within acceptable ranges.	
11/11/03				Standardized to use for purge data collection. All probes stabilized, but DO was not within acceptable ranges.		Standardized to use for purge data collection. pH would not standardize so pH and ORP probe locations were switched. pH probe, 1095, then stabilized, but did not read accurately in 7.0 standard. A two-point standardization was performed, but the probe was still not accurate (slope of zero between 4 and 7). Called In-Situ.	
11/12/03						In-Situ made some suggestions. The pH probe 1095 was shaken to make sure no air bubbles were in the bulb and it was soaked in pH 7 solution for a few days.	

Table B-1. (continued).

Date	SN 30391/30960	SN 30542	SN 30543	SN 30544	SN 30545	SN 30546	SN 30547
11/13/03				Extracted and deleted purge files and left probes in Troll. Ready to be deployed next week.		Changed DO and pH probes, inserted pH probe 01147 and DO probe 00034. Ready to be deployed next week.	
11/18/03	Removed from TAN-28. Circulator was not operating. Standardized and changed batteries. Redeployed in TAN-28. Circulator was operating.	Removed from TAN-31. Circulator was operating. Standardized and depth standardized to zero and set to record in feet. Changed batteries. Redeployed in TAN-31. Circulator was operating.	Removed from TAN-30A. Circulator was operating. Standardized, but the DO would not stabilize.	Standardized, changed batteries, and deployed TAN-1860 to ~266 ft bls. Circulator was operating.		Standardized, changed batteries, and depth standardized to zero. Deployed in TAN-1861 to ~236 ft bls. Circulator was operating.	
11/19/03			Standardized, DO did stabilize. Changed batteries. Deployed in TAN-30A.				
11/24/03	Extracted test 28-111803. Battery at 70%. Reconnected at 1200 baud.	Extracted test 31-111903. Battery at 40%. Excessively draining battery power, Jeff at In-Situ suggests sending back to update firmware. Removed from TAN-31, changed batteries, and redeployed.	Extracted test 30A-111903. Battery at 73%. Reconnected at 1200 baud.	Extracted test 60-111903. Battery at 45%. Excessively draining battery power, In-Situ suggests sending back to update firmware. Removed from TAN-1860, changed batteries, and redeployed.		Extracted test 61-111903. Battery at 47%. pH probe reading high. Excessively draining battery power, In-Situ suggests sending back to update firmware. Removed from TAN-1861, changed batteries, changed pH probe and standardized, and redeployed.	
12/02/03	Extracted tests 28-111803, 28-120103, 28-120203. Battery at 70%. Reconnected at 1200 baud.	Extracted tests 31-112403, 31-120103, 31-120203. Battery at 34%.	Extracted tests 30A-111903, 30A-120103, 30A-120203. Battery at 73%. Reconnected at 1200 baud.	Extracted tests 60-112403, 60-120103, 60-120203. Battery at 45%.	Received from In-Situ following repairs. Flex circuit was replaced and the unit was recalibrated. RMA# 22668.	Extracted tests 61-112403, 61-120103, 61-120203. Battery at 38%.	Received from In-Situ following repairs. Flex circuit was replaced and the unit was recalibrated. RMA# 22669. Inserted probes to prepare to use for purge data collection next week.

Table B-1. (continued).

Date	SN 30391/30960	SN 30542	SN 30543	SN 30544	SN 30545	SN 30546	SN 30547
12/08/03					Inserted probes to prepare to use for purge data collection. Standardized.		Standardized to use for purge data collection. Extracted and deleted purge data files. DO and pH probes reading high.
12/09/03					Changed batteries and used for purge data collection. Extracted and deleted purge data files.		
12/10/03	Extracted test 28-120203. Battery at 68%. Reconnected at 1200 baud.	Extracted test 31-120203. Battery at 19%.	Extracted test 30A-120203. Battery at 68%. Reconnected at 1200 baud.		Used for purge data collection. Extracted and deleted purge data files. DO reading high.		
12/17/03	Removed from TAN-28. Circulator was not operating. Standardized and changed batteries. Redeployed in TAN-28. Circulator was operating.	Removed from TAN-31. Circulator was not operating. Standardized and changed batteries. Redeployed in TAN-1860. Circulator was operating.	Removed from TAN-30A. Circulator was operating. Standardized and changed batteries. Redeployed in TAN-30A. Circulator was operating.	Removed from TAN-1860. Circulator was operating. Battery at 23%. Extracted and deleted tests. Put in storage because of excessive battery drainage.	Standardized, ORP accepted as nominal, and changed batteries. Deployed in TAN-1861. Circulator was operating.	Removed from TAN-1861. Circulator was operating. Extracted and deleted tests. Battery at 12%. Put in storage because of excessive battery drainage.	Standardized, DO accepted as nominal, and changed batteries. Deployed in TAN-31. Circulator was operating.
12/22/03	Extracted test 28-121703. Battery at 73%.	Extracted test 60-121703. Battery at 42%.	Extracted test 30A-121703. Battery at 70%.		Extracted test 61-121703. Battery at 47%.		Extracted test 31-121703. Battery at 49%.
01/07/04	Extracted tests 28-121703, 28-010604, and 28-010704. Battery at 60%. Battery power is reading incorrectly and should be fixed with next firmware upgrade. This troll is connected to the telemetry system, which reduces internal battery power usage.	Extracted tests 60-121703, 60-010604, and 60-010704. Battery at 8%. Battery power is reading incorrectly and should be fixed with next firmware upgrade.	Extracted tests 30A-121703, 30A-010604, and 30A-010704. Battery at 55%. Battery power is reading incorrectly and should be fixed with next firmware upgrade. This troll is connected to the telemetry system, which reduces internal battery power usage.	Battery power is reading incorrectly and should be fixed with next firmware upgrade.	Extracted tests 61-121703, 61-010604, and 61-010704. Battery at 17%. Battery power is reading incorrectly and should be fixed with next firmware upgrade.	Battery power is reading incorrectly and should be fixed with next firmware upgrade.	Extracted tests 31-121703, 31-010604, and 31-010704. Battery at 23%. Battery power is reading incorrectly and should be fixed with next firmware upgrade.
01/13/04	As of the 12 January 2004 sampling event, purge data will not be collected during sampling. The trolls will only be used in situ to collect depth, ORP, and conductivity data. Received 8 new ORP and 8 new conductivity probes from In Situ, Inc. for the trolls.						

Table B-1. (continued).

Date	SN 30391/30960	SN 30542	SN 30543	SN 30544	SN 30545	SN 30546	SN 30547
02/02/04	Removed from TAN-28. Removed and disposed of probes. Inserted new ORP (OP3002 Exp. Date 5/05) and Conductivity (CN3007 Exp. Date 7/05) probes. Standardized and changed batteries. Firmware updated to Version 1.29. Redeployed in TAN-28 and connected to telemetry system.	Removed from TAN-1860. Removed and disposed of probes. Inserted new ORP (OP3000 Exp. Date 5/05) and Conductivity (CN3065 Exp. Date 7/05) probes. Standardized and changed batteries. Firmware updated to Version 1.29. The ORP probe would not stabilize when in Port 1; it just stayed at nominal for about 1 hour. It was placed in Port 2 and stabilized fine. Port 1 may be bad. Redeployed in TAN-1860.	Removed from TAN-30A. Removed and disposed of probes. Inserted new ORP (OP3003 Exp. Date 5/05) and Conductivity (CN3008 Exp. Date 7/05) probes. Standardized. Firmware updated to Version 1.29. Redeployed in TAN-30A and connected to telemetry system.	Still in storage. Firmware updated to version 1.29.	Removed from TAN-1861. Removed and disposed of probes. Inserted new ORP (OP1021 Exp. Date 9/04) and Conductivity (CN3009 Exp. Date 7/05) probes. Standardized and changed batteries. Firmware updated to Version 1.29. Redeployed in TAN-1861.	Removed from storage. Inserted new ORP (OP3001 Exp. Date 5/05) and Conductivity (CN3006 Exp. Date 7/05) probes. Standardized and changed batteries. Firmware updated to Version 1.29.	Removed from TAN-31. Removed and disposed of probes. Inserted new ORP (OP1016 Exp. Date 9/04) and Conductivity (CN3076 Exp. Date 7/05) probes. Standardized and changed batteries. Firmware updated to Version 1.29. Redeployed in TAN-31.
02/02/04	Since DO probes will no longer be used, the circulators are not needed. All circulators were cleaned and placed in storage.						
02/03/04						Deployed in TAN-37A and connected to telemetry system.	
02/10/04	Extracted tests 28-020204, 28-020904, 28-021004. Battery at 100%. Connected to the telemetry system at 1200 baud.	Extracted tests 60-020204, 60-020904, 60-021004. Battery at 69%.	Extracted tests 30A-020204, 30A-020904, 30A-021004. Battery at 93%. Connected to the telemetry system at 1200 baud.		Extracted tests 61-020204, 61-020904, 61-021004. Battery at 74%.	Extracted tests 37A-020304, 37A-020904, 37A-021004. Battery at 78%.	Extracted tests 31-020204, 31-020904, 31-021004. Battery at 76%.
03/01/04	Cell phone service for the telemetry system has been disconnected, but the solar panel will continue to provide power to the Trolls that are connected to the network.						

Table B-1. (continued).

Date	SN 30391/30960	SN 30542	SN 30543	SN 30544	SN 30545	SN 30546	SN 30547
03/02/04	Extracted and deleted tests 28-020204, 28-020904, and 28-021004. Battery at 100%. Added tests 28-030204, 28-031504, and 28-031604. Connected to the network.	Extracted and deleted tests 60-020204, 60-020904, and 60-021004. Battery at 44%. Added tests 60-030204, 60-031504, and 60-031604.	Extracted and deleted tests 30A-020204, 30A-020904, and 30A-021004. Battery at 91%. Added tests 30A-030204, 30A-031504, and 30A-031604. Connected to the network.		Extracted and deleted tests 61-020204, 61-020904, and 61-021004. Battery at 46%. Added tests 61-030204, 61-031504, and 61-031604.	Extracted and deleted tests 37A-020204, 37A-020904, and 37A-021004. Battery at 56%. Added tests 37A-030204, 37A-031504, and 37A-031604. Connected to the network.	Extracted and deleted tests 31-020204, 31-020904, and 31-021004. Battery at 50%. Added tests 31-030204, 31-031504, and 31-031604.
03/09/04					Battery at 37%. Checked battery to determine if the batteries in the Trolls needed to be replaced.		
03/16/04							Extracted tests 31-030204, 31-031504, and 31-031604. Battery at 35%.
03/18/04	Downloaded tests 28-030204, 28-031504, and 28-031604. Battery at 95%.	Removed from TAN-1860. Battery at 24%. Changed batteries. Extracted and deleted tests 60-030204, 60-031504, and 60-031604. Set new test, 60-031804. Redeployed in TAN-1860.	Downloaded tests 30A-030204, 30A-031504, and 30A-031604. Battery at 87%.		Removed from TAN-1861. Battery at 28%. Changed batteries. Extracted and deleted tests 61-030204, 61-031504, and 61-031604. Set new test, 61-031804. Redeployed in TAN-1861.	Removed from TAN-37A. Battery at 50%. Changed batteries. Extracted and deleted tests 37A-030204, 37A-031504, and 37A-031604. Set new test, 37A-031804. Redeployed in TAN-37A.	Removed from TAN-31. Battery at 35%. Changed batteries. Extracted and deleted tests 31-030204, 31-031504, and 31-031604. Set new test, 31-031804. Redeployed in TAN-31.
05/03/04	Removed from TAN-28. Battery at 100%. Deleted old tests. Standardized. Time reset for daylight savings. Set new tests 28-050304, 28-051004, and 28-051104. Redeployed in TAN-28.	Removed from TAN-1860. Battery at 28%. Changed batteries. Deleted old tests. Standardized. Time reset for daylight savings. Set new tests 60-050304, 60-051004, and 60-051104. Redeployed in TAN-60.	Removed from TAN-30A. Battery at 93%. Deleted old tests. Standardized. Time reset for daylight savings. Set new tests 30A-050304, 30A-051004, and 30A-051104. Redeployed in TAN-30A.		Removed from TAN-1861. Battery at 31%. Changed batteries. Deleted old tests. Standardized. Time reset for daylight savings. Set new tests 61-050304, 61-051004, and 61-051104. Redeployed in TAN-61.	Removed from TAN-37A. Battery at 50%. Changed batteries. Deleted old tests. Standardized. Time reset for daylight savings.	Removed from TAN-31. Battery at 33%. Changed batteries. Deleted old tests. Standardized. Time reset for daylight savings. Set new tests 31-050304, 31-051004, and 31-051104. Redeployed in TAN-31.

Table B-1. (continued).

Date	SN 30391/30960	SN 30542	SN 30543	SN 30544	SN 30545	SN 30546	SN 30547
05/04/04						Set new tests 37A-050404, 37A-051004, and 37A-051104. Redeployed in TAN-37A.	
05/11/04	Downloaded tests 28-050304, 28-051004, and 28-051104. Battery at 93%.	Downloaded tests 60-050304, 60-051004, and 60-051104. Battery at 71%.	Downloaded tests 30A-050304, 30A-051004, and 30A-051104. Battery at 84%.		Downloaded tests 61-050304, 61-051004, and 61-051104. Battery at 74%.	Downloaded tests 37A-050404, 37A-051004, and 37A-051104. Battery at 76%.	Downloaded tests 31-050304, 31-051004, and 31-051104. Battery at 78%.
05/13/04				Removed from storage, changed batteries, inserted new probes, and standardized. Deployed in TAN-37B with Troll cable SN001450.		Removed from TAN-37A because Hydrolab 40022 in TAN-37B needed to be removed. Redeployed in TAN-37A after Troll 30544 was deployed in TAN-37B.	
05/17/04				Downloaded tests 37B-051304. Battery at 91%.		Downloaded tests 37A-050404, 37A-051004, and 37A-051104. Battery at 69%.	
06/01/04	Downloaded test 28-051104. Battery at 93%.	Downloaded test 60-051104. Battery at 39%.	Downloaded test 30A-051104. Battery at 84%.	Downloaded test 37B-051304. Battery at 65%.	Downloaded test 61-051104. Battery at 46%.	Downloaded test 37A-051104. Battery at 56%.	Downloaded test 31-051104. Battery at 50%.
06/16/04	Downloaded tests 28-051104. Battery at 98%.	Downloaded tests 60-051104. Battery at 24%. Removed from well and changed battery. Set new test 60-061604.	Downloaded tests 30A-051104. Battery at 87%.	Downloaded tests 37B-051104. Battery at 56%. Removed from well and changed battery. Set new test 37A-061604.	Downloaded tests 61-051104. Battery at 31%. Removed from well and changed battery. Set new test 61-061604.	Downloaded tests 37A-051104. Battery at 47%. Removed from well and changed battery. Set new test 37A-061604.	Downloaded tests 31-051104. Battery at 37%. Removed from well and changed battery. Set new test 31-061604.
07/13/04	Downloaded tests 28-051104. Battery at 93%.	Downloaded tests 60-061604. Battery at 41%.	Downloaded tests 30A-051104. Battery at 87%.	Downloaded tests 37B-061604. Battery at 61%.	Downloaded tests 61-061604. Battery at 48%.	Downloaded tests 37A-061604. Battery at 59%.	Downloaded tests 31-061604. Battery at 54%.

Table B-1. (continued).

Date	SN 30391/30960	SN 30542	SN 30543	SN 30544	SN 30545	SN 30546	SN 30547
08/02/04	Removed from TAN-28. Would not connect. Changed batteries. Deleted old tests. Firmware upgraded to 1.39. Standardized. Set new tests 28-080204, 28-081604, and 28-081704. Redeployed in TAN-28.	Removed from TAN-60. Deleted old tests. Firmware upgraded to 1.39. Standardized. Battery at 22%. Changed batteries, but would not reconnect.	Removed from TAN-30A. Deleted old tests. Firmware upgraded to 1.39. Standardized. Battery at 95%. Set new tests 30A-080204, 30A-081604, and 30A-081704. Redeployed in TAN-30A.	Removed from TAN-37B. Deleted old tests. Firmware upgraded to 1.39. Standardized. Battery at 48%. Changed batteries. Set new tests 37B-080204, 37B-081604, and 37B-081704. Redeployed in TAN-37B.	Removed from TAN-61. Deleted old tests. Firmware upgraded to 1.39. Standardized. Battery at 31%. Changed batteries. Set new tests 61-080204, 61-081604, and 61-081704. Redeployed in TAN-1861.	Removed from TAN-37A. Deleted old tests. Firmware upgraded to 1.39. Standardized. Battery at 44%. Changed batteries. Set new tests 37A-080204, 37A-081604, and 37A-081704. Redeployed in TAN-37A.	Removed from TAN-31. Deleted old tests. Firmware upgraded to 1.39. Standardized. Battery at 39%. Changed batteries. Set new tests 31-080204, 31-081604, and 31-081704. Redeployed in TAN-31.
08/03/04		Would not connect to computer. Placed in storage until funding is available to send in for repairs.					
08/17/04	Downloaded 28-080204, 28-081604, and 28-081704. Battery at 100%.		Downloaded 30A-080204, 30A-081604, and 30A-081704. Battery at 87%.	Downloaded 37B-080204, 37B-081604, and 37B-081704. Battery at 69%.	Downloaded tests 61-080204, 61-081604, and 61-081704. Battery at 61%.	Downloaded tests 37A-080204, 37A-081604, and 37A-081704. Battery at 67%.	Downloaded tests 31-080204, 31-081604, and 31-081704. Battery at 65%.
09/07/04	Downloaded 28-080204, 28-081604, and 28-081704. Battery at 100%.		Downloaded 30A-080204, 30A-081604, and 30A-081704. Battery at 84%.	Downloaded 37B-080204, 37B-081604, and 37B-081704. Battery at 56%.	Downloaded tests 61-080204, 61-081604, and 61-081704. Battery at 24%.	Downloaded tests 37A-080204, 37A-081604, and 37A-081704. Battery at 52%.	Downloaded tests 31-080204, 31-081604, and 31-081704. Battery at 46%.
09/08/04					Check Troll 30545, Battery at 60%.		

Date	MS-35771	DS-35026 Diver SN24461 (after 6/24/02)	MS-31983 & MS-40022 (after 6/03/02)	MS-38148	MS-38149	MS-39681
11/04/03	Could not download TAN-1859 using new gray computer. 69% battery power left.	Diver downloaded in TAN-25 and reset to collect data every 4 hours.			Could not download TAN-37A using new gray computer. 54% battery power left.	
11/05/03	Downloaded in TAN-1859 using old black computer. 73% battery power left.		Called Hydrolab for help in fixing the DO probe.	Downloaded in TAN-37B. 77% battery power left.	Downloaded in TAN-37A using old black computer. 54% battery power left.	
11/12/03			Called Julia Bailey at Hydrolab (1-800-227-4224 Ext. 2877) to get repair information. The DO probe will not communicate properly and is reading out of range. This repair is under warranty.			
11/13/03			Sent back to manufacturer to repair DO probe. Repair job #124286.			
11/18/03	Removed from TAN-1859. The Hydrolab was hung inside the well and needed to be lowered and raised again to remove it. RadCon survey showed it was clean. Downloaded and DO membrane changed.	Diver downloaded in TAN-25 and reset to collect data every 4 hours.		Removed from TAN-37B. Data downloaded and DO membrane changed.	Removed from TAN-37A. Data downloaded and DO membrane changed.	DO membrane was changed.
11/19/03	Standardized and deployed in TSF-05 at 231 ft bls. Hydrolab depth reading 17.2 ft.			Standardized and deployed in TAN-37B. Hydrolab depth reading 59.8 ft.	Standardized and deployed in TAN-37A. Hydrolab depth reading 23.3 ft.	
11/24/03	Downloaded in TSF-05. 93% battery power left.	Diver downloaded and reset to collect data every 5 minutes.		Downloaded in TAN-37B. 97% battery power left.	Downloaded in TAN-37A. 93% battery power left.	
12/02/03	Downloaded in TSF-05. 69% battery power left.		Returned from manufacturer. DO/conductivity sensor was replaced and unit was calibrated. Job #124286.	Downloaded in TAN-37B. 69% battery power left.	Downloaded in TAN-37A. 61% battery power left.	

Table B-1. (continued).

Date	MS-35771	DS-35026 Diver SN24461 (after 6/24/02)	MS-31983 & MS-40022 (after 6/03/02)	MS-38148	MS-38149	MS-39681
12/08/03	Downloaded in TSF-05. 65% battery power left.	Diver downloaded in TAN-25 and reset to collect data every 4 hours.		Downloaded in TAN-37B. 69% battery power left.	Downloaded in TAN-37A. 61% battery power left.	
12/17/03	Removed from TSF-05, hung out of the water, but in the well for about 1.5 hours and was fine by Radcon's survey. A brownish-black dirt-like substance was caked on the cord and rubbed off in flakes. This Hydrolab was cleaned by the well house. Brought to lab, changed DO membrane and downloaded data.	Removed from TAN-25 for standardization. Cleaned with DI water.		Removed from TAN-37B. Data downloaded and DO membrane changed.	Removed from TAN-37A. Data downloaded and DO membrane changed. Put into storage.	
12/22/03	Standardized, changed batteries, and deployed in TAN-1859.	No solution was available to standardize the diver, so it was cleaned and redeployed in TAN-25.	Returned from manufacturer on 12/0/03. Standardized, changed batteries, and deployed in TAN-37B.	Standardized, changed batteries, and deployed in TAN-37A.		
01/07/04	Downloaded in TAN-1859, tests included 22Dec59, 6Jan59, and 7Jan59. 69% battery power left.	Downloaded diver in TAN-25. Set a new test to collect data every 4 hours.	Downloaded in TAN-37B, tests included 22Dec37B, 6Jan37B, and 7Jan37B. 77% battery power left.	Downloaded in TAN-37A, tests included 22Dec37A, 6Jan37A, and 7Jan37A. 69% battery power left.		
02/02/04	Removed from TAN-1859. The cage was not attached. It may have fallen off while pulling out of the well because the Hydrolab got stuck in a few places. Operations supervisor Evan Myler was notified. RadCon survey showed it was clean. Downloaded data, DO membrane changed, batteries changed, and cleaned probes with methanol and outside body with bleach.	Diver removed from TAN-25. Diver was cleaned and placed in DI water.	Removed from TAN-37B. Hydrolab was covered with a black film. The outside body was cleaned with bleach and the probes were cleaned with methanol. Data downloaded and DO membrane changed.	Removed from TAN-37A. Downloaded data. Battery at 61%. Hydrolab was cleaned and placed in storage.		

Table B-1. (continued).

Date	MS-35771	DS-35026 Diver SN24461 (after 6/24/02)	MS-31983 & MS-40022 (after 6/03/02)	MS-38148	MS-38149	MS-39681
02/03/04	Standardized and deployed in TSF-05. Circulator and pH probe do not work.	Attempted to standardize conductivity, but calibration wizard stated that instrument was contaminated and could not be calibrated. The diver read accurate conductivity readings when placed in calibration solution. Talked to Steve at Hydrolab and he suggested sending an email to Hydrolab Tech Support and they would contact Van Essen to solve the problem. Diver was redeployed in TAN-25 and a test set to collect data every 5 minutes.	Standardized and deployed in TAN-37B. Hydrolab is functioning well and collecting accurate readings.			
02/10/04	Downloaded in TSF-05, tests included 3Feb05, 9Feb05, and 10Feb05. 77% battery power left.	Stopped test and downloaded. Set new test to collect data every 4 hours starting at 1600.	Downloaded in TAN-37B, tests included 3Feb37B, 9Feb37B, and 10Feb37B. 67% battery power left.			
03/02/04	Removed from TSF-05. Cleaned with methanol. Downloaded and deleted tests 3Feb05, 9Feb05, and 10Feb05. Standardized and changed batteries. Set new tests 2Mar59, 15Mar59, and 16Mar59. Deployed in TAN-1859.	Stopped test and downloaded. Set new test to collect data every 4 hours starting at 1600. The diver does not accurately collect conductivity data. It was purchased from Hydrolab around June 2002 with a 1-year warranty. Hydrolab no longer services divers and has no additional suggestions for troubleshooting it. It will be used "as is" to collect depth data.	Downloaded in TAN-37B, tests included 3Feb37B, 9Feb37B, and 10Feb37B. Deleted tests. 62% battery power left. Set new tests 2Mar37B, 15Mar37B, and 16Mar37B.			
03/09/04		Downloaded diver in TAN-25. Set a new test to collect data every 5 minutes.				
03/16/04		Downloaded diver in TAN-25. Set a new test to collect data every 4 hours.				

Table B-1. (continued).

Date	MS-35771	DS-35026 Diver SN24461 (after 6/24/02)	MS-31983 & MS-40022 (after 6/03/02)	MS-38148	MS-38149	MS-39681
03/18/04	Downloaded in TAN-1859. 69% battery power left.					
05/03/04	Removed from TAN-1859.		Removed from TAN-37B. Batteries were dead. Changed batteries. ORP would not standardize. Hydrolab suggested changing the Teflon junction. It was changed and ORP standardized properly. Changed DO membrane.			
05/04/04	Standardized, changed batteries, set new tests (4May59, 10May59, and 11May59), and deployed in TAN-1859.	Downloaded in TAN-25. Set new test to collect data every 5 minutes.	Standardized, set new tests (4May37B, 10May37B, and 11May37B), and deployed in TAN-37B.			
05/11/04	Downloaded in TAN-1859, tests included 04May59, 10May59, and 11May59. 77% battery power left.		Attempted to connect in TAN-37B, would not connect to the computer.			
05/13/04		Downloaded in TAN-25. Set new test to collect data every 4 hours.	Attempted to connect in TAN-37B, would not connect to the computer. Removed from TAN-37B. Removed batteries and discovered that water had seeped into the battery cage. Called Hydrolab, Jerry told us that the warranty expired on 5/12/04, but he would see if the problem could be fixed under an extended warranty.			
05/17/04			Jerry at Hydrolab said the problem was with the seals and this is not covered under warranty. We left the Hydrolab battery cage open to air out.			

Table B-1. (continued).

Date	MS-35771	DS-35026 Diver SN24461 (after 6/24/02)	MS-31983 & MS-40022 (after 6/03/02)	MS-38148	MS-38149	MS-39681
05/16/04			Placed batteries in the Hydrolab and it beeps, but will not connect to ProComm. Jerry at Hydrolab said there is nothing we can do; we just have to send it in for repairs.			
06/01/04	Downloaded in TAN-1859, test 11May59. 69% battery power left.	Downloaded in TAN-25.				
06/16/04	Downloaded in TAN-1859, test 11May59. 65% battery power left.					
07/13/04	Downloaded in TAN-1859, test 11May59. 54% battery power left.	Downloaded in TAN-25, test 25-071304.				
08/02/04	Removed from TAN-1859. Cleaned and changed DO membrane.					
08/03/04	Downloaded data, standardized, changed batteries, and set new tests 2aug59, 16aug59, and 17aug59. Deployed in TAN-1859.					
08/11/04	Downloaded test 2aug59.	Downloaded in TAN-25, test 25-081104. Set new test to collect data every 5 minutes.				
08/17/04	Downloaded data from tests 2aug59, 16aug59, and 17aug59. Battery at 73%.	Downloaded in TAN-25, test 25-081704. Set new test to collect data every 4 hours.				
09/07/04	Downloaded data from tests 2aug59, 16aug59, and 17aug59. Battery at 65%.	Check diver in TAN-25. Depth readings appear to be an error. Download data as 25-090704.				

Table B-1. (continued).

Date	MiniTroll SN-6599	MiniTroll SN- 6575	Hermit 3000 SN-45733
11/04/03	Extracted and deleted data in TAN-1859. Added new test, 1859-110403, to collect data every 4 hours. Battery at 100%.	Extracted and deleted data in TAN-37, test 37-102903. Upgraded firmware from 3.06 to 3.07. Added new test, 37-110403, to collect data every 4 hours. Battery at 100%.	The iPAQ would not connect to the Hermit.
11/13/03			The iPAQ would not connect to the Hermit.
11/19/03	Changed from "Top of Casing" mode to "Depth" mode, pulled out of the water to calibrate depth to atmosphere. Lowered mini-Troll to 2.242 ft, and set up a new test to collect every 4 hours.	Changed from top of casing mode to depth mode, and pulled it out of the water to calibrate depth to atmosphere. Set up a new test to collect every 4 hours.	The iPAQ was reset by pressing a bottom button, so now it can connect to the Hermit. Changed from "Top of Casing" mode to "Depth" mode. Set up a new test to collect every 4 hours.
11/24/03	Extracted and deleted data in TAN-1859, test 59-111903. Added new test, 59-1102403, to collect data every 5 minutes. Battery at 100%.		Extracted and deleted data in TSF-05, test 05-111903. Added new test, 05-112403, to collect data every 5 minutes. Battery at 48%.
12/02/03	Extracted and deleted data in TAN-1859, test 59-112403. Added new test, 59-120203, to collect data every 4 hours. Battery at 100%.	Extracted and deleted data in TAN-37, test 37-112403. Added new test, 37-120203, to collect data every 4 hours. Battery at 100%.	Extracted and deleted data in TSF-05. Added new test to collect data every 4 hours.
12/22/03	Extracted and deleted data in TAN-1859, test 59-120203. Added new test to collect data every 5 minutes. Battery at 100%.	Extracted and deleted data in TAN-37, test 37-120203. Added new test to collect data every 5 minutes. Battery at 100%.	Extracted and deleted data in TSF-05, test 05-120203. Added new test to collect data every 5 minutes. Battery at 20%.
01/07/04	Extracted and deleted data in TAN-1859, test 59-122203. Added new test, 59-010704, to collect data every 4 hours.	Extracted and deleted data in TAN-37, test 37-122203. Added new test, 37-010704, to collect data every 4 hours. Battery at 100%.	Extracted and deleted data in TSF-05. Added new test to collect data every 4 hours.
02/03/04	Extracted and deleted data in TAN-1859, test 59-010704. Added new test to collect data every 5 minutes.	Removed the mini-Troll from TAN-37 because a Troll will be deployed in TAN-37A.	Extracted and deleted data in TSF-05. Firmware updated to version 3.09. Added new test to collect data every 5 minutes.
02/10/04	Extracted and deleted data in TAN-1859, test 59-020304. Added new test, 59-021004, to collect data every 4 hours. Battery at 97%.		Extracted and deleted data in TSF-05, test 05-020304. Added new test, 05-021004, to collect data every 4 hours.
03/02/04	Extracted data in TAN-1859, test 59-021004. Battery at 94%.		Extracted data in TSF-05, test 05-021004. Battery at 49%.
03/09/04	Extracted and deleted data in TAN-1859, test 59-021004. Added new test, 59-030904, to collect data every 5 minutes. Battery at 89%.		Extracted and deleted data in TSF-05, test 05-021004. Added new test, 05-030904, to collect data every 5 minutes.

Table B-1. (continued).

Date	MiniTroll SN-6599	MiniTroll SN-6575	Hermit 3000 SN-45733
03/16/04	Extracted and deleted data in TAN-1859, test 59-030904. Added new test, 59-031604, to collect data every 4 hours. Battery at 89%.		Extracted and deleted data in TSF-05, test 05-030904. Added new test, 05-031604, to collect data every 4 hours.
05/04/04	Extracted and deleted data in TAN-1859. Set for daylight savings time. Added new test, 59-050404, to collect data every 5 minutes. Battery at 86%.		Extracted and deleted data in TSF-05. Set for daylight savings time. Added new test, 05-050404, to collect data every 5 minutes. Battery at 40%.
05/11/04	Extracted and deleted data in TAN-1859. Added new test, 59-051104, to collect data every 4 hours. Battery at 75%.		Extracted and deleted data in TSF-05. Added new test, 05-051104, to collect data every 4 hours. Battery at 60%.
06/01/04	Extracted data in TAN-1859, test 59-051104. Battery at 72%.		
07/13/04	Extracted data in TAN-1859, test 59-051104. Battery at 69%.		Extracted data in TSF-05, test 05-051104. Battery at 49%.
08/11/04	Extracted data in TAN-1859, test 59-051104. Battery at 64%. Set new test to collect data every 5 minutes, 59-081104.		Extracted data in TSF-05, test 05-051104. Battery at 26%. Set new test to collect data every 5 minutes, 05-081104.
08/17/04	Extracted data in TAN-1859, test 59-081104. Battery at 61%. Set new test to collect data every 4 hours, 59-081704.		Extracted data in TSF-05, test 05-081104. Clock about 10 minutes fast, set clock to match iPAQ time. Set new test to collect data every 4 hours, 05-081704.
09/07/04	Extracted data in TAN-1859, test 59-081704. Battery at 61%.		Extracted data in TSF-05, test 05-081704. Battery at 11%.

DO = dissolved oxygen
ORP = oxidation reduction potential